

6800/7000 Series

Frames and Power Supplies

Installation and Operation Manual

6800/7000 Series Frames and Power Supplies

Installation and Operation Manual

Edition B

June 2002



Preface

Purpose

This manual details the features, installation procedures, operational procedures, and specifications of the 6800/7000 Series - Frames and Power Supplies.

Audience

This manual is written for technicians and operators responsible for installation, setup, and/or operation of 6800/7000 Series - Frames and Power Supplies.

Writing Conventions

To enhance your understanding, the authors of this manual have adhered to the following text conventions:

Bold	Indicates dialog box, property sheet, field, button, checkbox, listbox, combo box, menu, submenu, window, list, and selection names.
<i>Italics</i>	Indicates email addresses, names of books and publications, and first instances of new terms and specialized words that need emphasis.
CAPS	Indicates a specific key on the keyboard, such as ENTER, TAB, CTRL, ALT, DELETE.
Code	Indicates variables or command-line entries, i.e., a DOS entry, something you type into a field, etc.
>	Indicates direction of navigation through a hierarchy of menus and windows.
hyperlink	Indicates a jump to another location in the document or elsewhere (such as a website).

Revision History

Edition	Date	Revision History
A	May 1998	Original release.
B	June 2002	Updated Information.

Summary of the 6800/7000 Series Product Manuals

Audio/Video/Mux and Demultiplexing Manual	
Chapter 1	ADC-6801 CAV to SDI Converter Module
Chapter 2	ADC-6880 Analog to AES/EBU Digital Convertor
Chapter 3	ADM/ASM-680x Embedded Audio Monitoring Module
Chapter 4	DAC-6801 Digital to Analog Component Converter
Chapter 5	DAC-6880 AES/EBU Digital Audio to Analog Audio Converter
Chapter 6	DEC-6801/DES-6801 Decoder/Decoder with Frame Synchronizer Module
Chapter 7	DEC-6801/DES-6801M and ENC-ENS/ENX-6801A Encoder Modules
Chapter 8	MXA-6800-AES and MXA-6801-A2/A4 Audio Multiplexer Module
Chapter 9	VFS-6801 Serial Component Frame Synchronizer Module
Chapter 10	VTG-6801 Video Timing Switcher
Appendix A	Embedding Modes Graphic Description

Test Series Manual	
Chapter 1	VTG-6801-1 and VTG-6801-1A 4:2:0 and 4:2:2 Serial Digital Test Generator Module
Chapter 2	VTG-6801-2 Serial Digital Test Generator Module
Chapter 3	DAR-6880 AES/EBU Digital Audio Reference and Tone Generator
Chapter 4	SAI-6800 4:2:2 Safe Area Generator/Inserter Module
Chapter 5	VTG-6800 MIX BOX Frame and Control Assembly
Chapter 6	EDH-6800MB Detection and Handling MIX BOX

Routers and Distribution Manual

Chapter 1	AES-6880 AES/EBU Digital Audio Distribution Amplifier Module - General
Chapter 2	DNH-6800 DigiNet Hub Module
Chapter 3	EDH-6800-2EDH Detection/Insertion Serial Distribution Amplifier Module
Chapter 4	USM-6800 PAL/NTSC Monitoring Encoder Module
Chapter 5	VCM-6801 Serial Component Monitoring Distribution Amplifier Module
Chapter 6	VDA-6830 Video Distribution Amplifier Module
Chapter 7	VEA-6830 Video Equalizing Amplifier Module
Chapter 8	VEA-6840 Video Equalizing Amplifier Module
Chapter 9	VPD-6830 Programmable Video DA Series
Chapter 10	VSD-6801 Serial Digital Distribution Amplifier Module
Chapter 11	VSE-6801 Serial Equalizing Amplifier Module
Chapter 12	VSE-6802 Serial Equalizing Distribution Amplifier
Chapter 13	VSM-6802 Digital Composite Video Signal
Chapter 14	VSM-6804 Digital Composite Video Signal Monitor Module
Chapter 15	VSR-4041 Serial Video Router Module

LogoMotion Manual

Chapter 1	Logo Utilities for 6800 Series
Chapter 2	LGI-6801 Serial Digital Logo Generator/Inserter Module
Chapter 3	VES-6801 Flash EPROM Side Module
Chapter 4	DSK-6801/3 Downstream Serial Keyer
Chapter 5	DSK-CP1/2 Downstream Serial Keyer Control Panel

Frames and Power Supply Manual

Chapter 1	Mounting Frames
Chapter 2	FR-6801/FR-6801-1 Frames
Chapter 3	FR-6804/FR-6804-1 Frames
Chapter 4	CF-6801 Cooling Frame
Chapter 5	FR-7001 and FR-7000MB MIX BOX
Chapter 6	6801PS Power Supply Module
Chapter 7	6804(-1) Power Supply Module
Chapter 8	7000 Power Supply Module
Chapter 9	6801PS-48 Power Supply Module
Chapter 10	6804PS-1-48 Power Supply Module

Unpacking/Shipping Information

This product has been carefully inspected, tested and calibrated before shipment to ensure years of stable and troublefree service. Please check the equipment for any visible damage which may have occurred during transit.

Please confirm that all items listed on the packing list have been received. If any item on the packing list is missing, please contact your Leitch dealer. If any item is damaged please contact the carrier. Ensure that all packaging material is removed from the product and its associated components before installing the unit.

It is suggested that you keep at least one set of original Leitch packaging, in the event that a product needs to be returned for service. If the original packaging is not available, you can purchase replacement packaging from Leitch at a modest cost or supply your own packaging as long as it meets the following criteria:

- Packaging must be able to withstand the product weight.
- Product must be held rigid within the packaging.
- There must be at least two inches of space between the product and the container.
- The corners of the product must be protected.

Products that are being returned to Leitch for servicing should be shipped pre-paid in the original packaging material if possible. If the product is still within the warranty period, the product will be returned by pre-paid shipment after servicing.

Installation Information

If this product is rack mountable, it should be mounted in an appropriate rack using the rack mounting positions and rear support guides provided. It is recommended that each frame be connected to a separate electrical circuit for protection against circuit overloading. If this product relies on forced air cooling, it is recommended that all obstructions to the air flow be removed prior to installing the frame in the rack.

If this product has a provision for external earth grounding, it is recommended that the frame be grounded to earth via the protective earth ground on the rear panel.

Important Safety Instructions

Review the following safety precautions to avoid injury and prevent damage to this product or any products connected to it. Read these instructions. Keep these instructions. Heed all warnings. Follow all instructions.

Servicing

Only qualified personnel should perform service procedures. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.

Safety Terms and Symbols

Terms and Symbols in This Manual



WARNING:

Statements identifying conditions or practices that can result in personal injury or loss of life: High voltage is present. Uninsulated dangerous voltage within the product's enclosure may be sufficient to constitute a risk of electric shock to persons.



CAUTION:

Statements identifying conditions or practices that can result in damage to the equipment or other property: Important operating and maintenance (servicing) instructions in the literature accompanying the product.

Terms and Symbols on the Product



DANGER:

High voltage and indicates a personal injury hazard immediately accessible as one reads the marking.



WARNING:

Indicates a personal injury hazard not immediately accessible as one reads the marking.



CAUTION:

Indicates a hazard to property including the product or to take attention and refer to the manual.



Protective ground (earth) terminal.



Fuse:

Replace with same type and rating of fuse.



Observe precautions for handling electrostatic-sensitive devices.

Injury Precautions



WARNING!

To reduce the risk of electric shock, do not expose this apparatus to rain or moisture.



CAUTION

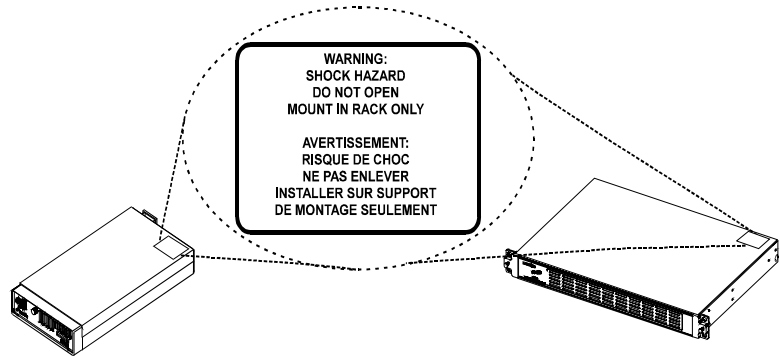
**RISK OF ELECTRIC SHOCK
DO NOT OPEN**



WARNING!

Potentially lethal voltages are present within this product's frame during normal operation. The AC power cord must be disconnected from the frame before the top panel is removed. (In frames with multiple power supplies, remove ALL power cords.) Power should not be applied to the frame while the top is open, unless properly trained personnel are servicing the unit.
[PL Poland] Przed zdjęciem pokrywy wyciągnąć wtyczkę z gniazda sieciowego.

[French] AVIS: RISQUE DE CHOC ELECTRIQUE - NE PAS OUVRIR. INSTALLER SUR SUPPORT DE MONTAGE SEULEMENT.



WAARSCHUWING:
SCHOK GEVAAR
NIET OPEN MAKEN
ALLEEN IN RAK MONTER

AVVISO:
PERICOLO DI CORRENTE
E PROIBITO L'APERTURA
SI PREGA DI FARE IL MONTAGGIO
AL PROPRIO SOPPORTO

FIGYELEM:
ÁRAMŰTÉS VESZÉLY
CSAK A MEGTELELŐ
TARTÓKERETBE ÜZEMBEHELYEZNI

ADVARSEL:
MULIGHED FOR ELEKTRISK STØD
INDEHOLDER STRØMFØRENDE DELE
APPARATET MÅ KUN ÅBNES AF
KVALIFICERET.
SKAL INSTALLERES I JORDET RACK

ATENÇÃO:
PERIGO DE CHOQUE
SO PARA MONTAGEM
EM BASTIDOR

注意：
請勿打頂板以免觸電
該設備須放在機櫃中使用

경고 전기 충격 위험 가능 열지 마십시오

WARNUNG:
SCHOCK GEFAHR
NICHT ÖFFNEN
NUR IN DAS GESTELL MONTIEREN

UWAGA:
GROZI PORAZENIEM
NIE OTWIERAC
MONTOWAC TYLKO W RAMIE

VARNING:
FARA FÖR ELEKTRICITETNEM KINYITNI
ÖPPNA EJ
MONTERES ENDAST I RACK

ADVERTENCIA:
PELIGRO DE DESCARGA ELÉCTRICA
NO ABRIR EL EQUIPO
SOLO PARA INSTALAR EN RACK

ΠΡΟΕΙΔΠΟΙΗΣΗ
ΚΙΝΔΗΝΟΣ ΗΛΕΚΤΡΟΠΛΗΞΙΑΣ
ΜΗΝ ΑΝΟΙΓΕΤΕ
ΤΟΠΟΘΕΤΕΙΣΤΕ ΜΟΝΟ ΣΕ ΚΑΤΑΛΛΗΛΟ
ΤΗΠΟΣΤΗΡΙΓΜΑΦΪΧ ΠπψΤψ

ТРЕДУПРЕЖДЕНИЕ:
Электрический опаность не открыте.
Монтировае в ракете только.

AVIS - Risque de choc electrique. Ne pas ouvrir.



Use Proper Power Cord

To avoid fire hazard, use only the power cord specified for this product.



Ground the Product

Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. When the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.

[United Kingdom] WARNING: THIS APPLIANCE MUST BE EARTHED.

[Sweden] APPARATEN SKALL ANSLUTAS TILL JORDAT UTTAG NÄR DEN ANSLUTS TILL ETT NÄTVERK.



Do Not Operate Without Covers

To avoid electrical shock or fire hazard, do not operate this product with covers or panels removed.



Use Proper Fuse

To avoid fire hazard, use only the fuse type and rating specified for this product.



Do Not Operate in Wet/Damp Conditions

To reduce the risk of fire or electric shock, do not expose this apparatus to rain or moisture



Do Not Operate in an Explosive Atmosphere

To avoid injury or fire hazard, do not operate this product in an explosive atmosphere.



Avoid Exposed Circuitry

To avoid injury, remove jewelry such as rings, watches, and other metallic objects. Do not touch exposed connections and components when power is present.

Product Damage Precautions



Use Proper Power Source

Do not operate this product from a power source that supplies more than the specified voltage.



Use Proper Voltage Setting

Before applying power, ensure that the line selector is in the proper position for the power source being used.



Provide Proper Ventilation

To prevent product overheating, provide proper ventilation.



Do Not Block Any Ventilation Openings

Do not block any of the ventilation openings. Install in accordance with the manufacturer's instructions.



Only Use Attachments/Accessories Specified by the Manufacturer



Do Not Operate With Suspected Failures

Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.

For Products with Multiple Power Cords:

CAUTION: This unit can have more than one power supply cord. To de-energize the internal circuitry, disconnect all power cords before servicing.

[Norwegian] ADVARSEL: Utstyret kan ha mere enn en tilførselsledning. For å gjøre interne deler spenningsløse må alle tilførselsledningene trekkes ut.

[Sweden] VARNING: Denna apparat har mer än en nätanslutning. Samtliga nätkablar måste bortkopplas för att göra de interna kretsarna spänningsfria.



Do Not Use This Apparatus Near Water

Do not expose this apparatus to dripping or splashing water. Ensure that no objects filled with liquid, such as vases or cups, are placed on the apparatus.



Clean Only With a Dry Cloth



Keep Product Away from Heat Sources

Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.



Install Near Socket Outlet

The equipment shall be installed near the socket outlet, and a disconnect device shall be easily accessible.



Protect the Power Cord

Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.



Attention:

Observe precautions for handling electrostatic-sensitive devices. See “Preventing Electrostatic Discharge” below for details.



Fuse Replacement:

CAUTION: FOR CONTINUED PROTECTION AGAINST RISK OF FIRE, REPLACE ONLY WITH THE SAME TYPE OF FUSE.
[French]ATTENTION: REMPLACER UNIQUEMENT PAR UN FUSIBLE DE MEME TYPE..

Battery Use Warnings



CAUTION:

DANGER OF EXPLOSION IF BATTERY IS INCORRECTLY PLACED. REPLACE ONLY WITH THE SAME OR EQUIVALENT TYPE RECOMMENDED BY THE MANUFACTURER. DISCARD USED BATTERIES ACCORDING TO THE MANUFACTURER'S INSTRUCTIONS.

[FI Finland] VAROITUS: Paristo voi rajahtaa, jos se on virheellisesti asennettu. Vaihda paristo ainoastaan valmistajan suosittelemaan tyyppun. Havita käytetty paristo valmistajan ohjeiden mukaisesti.

[SE Sweden] VARNING: Explosionsfara vid felaktigt batteribyte. Använd samma batterityp eller en eller en ekvivalent typ som rekommenderas av tillverkaren. Kassera anvant batteri enligt fabrikantens instruktion.

[D Denmark]

Advarsel! Lithiumbatteri. Eksplosionsfare ved fejlagtig handling. Udskiftning må kun ske med batteri af samme fabrikat og type. Lever det brugte batteri tilbage till leverandøren.

[KO Korean]

경고

만약 틀린 전지로 교환했을 경우, 폭발 위험이 가능합니다.
똑같거나, 동등한 종류와 교체하는 것을 제조업자로서 권장합니다.
제조업자의 지시에 따라, 사용된 전지는 버려 주십시오.

Preventing Electrostatic Discharge



CAUTION: Electrostatic discharge (ESD) can damage components in the product. To prevent ESD, observe these precautions when directed to do so:

- Use a Ground Strap. Wear a grounded antistatic wrist strap to discharge the static voltage from your body while installing or removing sensitive components.
- Use a Safe Work Area. Do not use any devices capable of generating or holding a static charge in the work area where you install or remove sensitive components. Avoid handling sensitive components in areas that have a floor or benchtop surface capable of generating a static charge.
- Handle Components Carefully. Do not slide sensitive components over any surface. Do not touch exposed connector pins. Handle sensitive components as little as possible.
- Transport and Store Carefully. Transport and store sensitive components in a static-protected bag or container.

Certifications and Compliances

This product has been tested and found to comply with the following CE, FCC, UL, ICES and CSA standards:

EMC Standards

EN55014	Limits and methods of measurement of radio disturbance characteristics of electric motor-operated and thermal appliances for household and similar purposes, electric tools and similar electric apparatus.
EN55022	Limits and methods of measurement of radio disturbance characteristics of information technology equipment Class A.
EN55103-1	Electromagnetic compatibility—Product family standard for audio, video, audio-visual and entertainment lighting control apparatus for professional use, Part 1: Emission, Environment E4.
EN55103-2	Electromagnetic compatibility—Product family standard for audio, video, audio-visual and entertainment lighting control apparatus for professional use, Part 2: Emission, Environment E4.
EN61000-4-2	Electrostatic discharge requirements “ESD” 2kV CD,4kV AD.
EN61000-4-3	Radiated radio-frequency electromagnetic field immunity test 1V/m {1kHz 80% AM, 80-1000MHz}.
EN61000-4-4	Electrical Fast transient requirements “Burst”, 0.5kV Sig. & Ctrl. Lines 0.5kV a.c. & d.c. Power line, 0.5kV functional earth.
EN61000-4-5	Surge Immunity test 0.5kV a.c. Power line.
EN61000-4-6	Immunity to conducted disturbances induced by radio frequency fields 1V rms 0.15-80MHz Sig. & Ctrl. Lines, 3V rms 0.15-80MHz d.c. Power line, 1V rms 0.15-80MHz a.c. Power line, 1V rms 0.15-80MHz functional earth.
EN61000-4-11	Voltage dips, short interruptions and voltage variations-immunity tests.

per the provision of the Electromagnetic Compatibility Directive 89/336/EEC of 3 May 1989 as amended by 92/31EEC of 28 April 1992 and 93/68/EEC, *Article 5* of 22 July 1993.

These devices are for professional use only and comply with Part 15 of FCC rules. Operation is subject to the following two conditions:

1. These devices may cause interference to Radio and TV receivers in residential areas
2. These devices will accept any interference received, including interference that may cause undesired operations.

These devices do not exceed the class A limits for radio noise emissions from digital apparatus as set out in the interference standard entitled “Digital apparatus”, ICES-003 of the Canadian Department of Communications.

Changes or modifications not expressly approved by Leitch, the party responsible for compliance to the FCC Part 15 Rule, could void the user’s authority to operate this equipment legally in the US.

Safety Standards

EN60065	Safety requirements for mains operated electronic and related apparatus for household and similar general use [IEC 60065: 1985, 5th Edition + A1: 1987 + A2: 1989 + A3: 1992, (modified)], per the provision of the Low-Voltage Directive 73/23/EEC of February 19, 1973, as amended by 93/68/EEC.
UL 1419	Safety requirements for Professional Audio and Video equipment.
CSA C22.2 No. 1-94	Safety Requirements for Audio, Video, and similar electronic equipment.

For 6804-1-48 & 6801PS-48

EN 60950-1992	Safety of information technology equipment, including electrical business equipment (Amendments A1: 1993, A2: 1993, A3: 1995, A4: 1997), per the provision of the Low-Voltage Directive 73/23/EEC of February 19, 1973 as amended by 93/68/EEC.
UL 1950	Safety of information technology equipment, including electrical business equipment.
CSA C22.2 No. 950-95	Safety of information technology equipment, including electrical business equipment.

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Introducing the 6800/7000 Series of Frames

Overview

The 6800/7000 series family of frames offers a modular flexible solution to any mix of serial digital products, including a wide range of serial DAs, logo and test generators, AES processing and distribution units, ADCs, and DACs, as well as encoding and decoding modules. Input/output functions are provided with BNC connectors, as well as a series of application-specific connection adapter modules. All frame types have fully passive, controlled impedance backplanes. The equipment is designed to meet demanding industry requirements and high standards of quality.

Frame Description

The 680x series of frames offers a modular flexible solution to a wide range of serial video processing and distribution functions. The following table shows a complete list and description of the 6800/7000 frames:

Frame	Description
FR-6801/FR-6801-1	A single rack unit housing four modules, and including the 6804PS(-1) power supply unit.
FR-6804/FR-6804-1	A two-rack unit, providing up to eight outputs per module, with a maximum of ten modules. The FR-6804(-1) comes equipped with one power supply unit, the 6804PS(-1), and is pre-wired for an optional second 6804PS(-1) unit or 6804PS-1-48. If power consumption is greater than 40 W, the CF-6801 Cooling Frame is required.
CF-6801 Cooling Frame	A one-rack unit (1RU) installed above the FR-6804(-1) frame.
FR-7001	A single-rack unit housing up to four processing modules and their appropriate interface modules (back-boxes), and one 6801PS power supply.
FR-7000MB MIX BOX	A mounting frame designed for stand alone operation. Each unit houses a single module and a 7000PS Power Supply. Any module requiring more than 7.5 W of total power can NOT be installed in a FR-7000MB MIX BOX frame.
FR-6801-1-48	A 1RU vented frame housing four modules, and one 6801PS-48 power supply unit.
FR-6804-1-48	A 2RU vented, two-rack unit, providing up to eight outputs per module, with a maximum of ten modules. The FR-6804-1-48 comes equipped with one power supply unit or the 6804PS-1-48, and is pre-wired for an optional second 6804PS(-1) or the 6804PS-1-48. If power consumption is greater than 40 W, the CF-6801 Cooling Frame is required.

Power and Frame Capacity

The FR-6804-1 mounting frame is identical to the FR-6804 except that it has a GPI (General Purpose Interface) function as shown below:

- The FR-6804-1 provides a GPI (General Purpose Interface) contact closure, indicating power supply failure.
- If the 6804PS(-1) is used in the FR-6804, or the 6804PS is used in the FR-6804-1, the power supply failure indication does not function.

Modules	+ve (W)	-ve (W)	Total (W)	FR-6804(-1) with one 6804PS-1	FR-6804(-1) with two 6804PS-1	FR-6804(-1) with two 6804PS-1 CF-6801 connected	FR-6804(-1) with two 6801PS-1 and no CF-6801 connected	FR-6801(-1)	FR-7001	FR-7000MB
ADC-6801	6.10	0.56	6.66	6	5	10	5	3	3	1
ADC-6880	1.86	1.20	3.06	10	10	10	10	4	4	1
ADM-6800	3.80	0.56	4.37	9	8	10	8	4	4	1
ADM-6804	0.50	3.93	4.43	9	7	10	8	4	4	1
AES-6880	0.70	0.24	0.94	10	10	10	10	4	4	1
ASM-6800	4.07	0.52	4.59	8	7	10	7	4	4	1
CF-6801	5W	5W	10W	N/A	N/A	N/A	N/A	N/A	N/A	N/A
DAC-6880	2.85	0.28	3.13	10	10	10	10	4	4	1
DAR-6880	2.00	0.60	2.60	10	10	10	10	4	4	1
DEC-6801	4.15	0.33	4.48	8	7	10	6	4	4	1
DES-6801	6.46	0.49	6.95	5	5	10	4	2	-	1
DNH-6800	1.50	0.27	1.77	10	10	10	10	4	4	1
DSK-6801	11.04	0.41	11.45	3	3	6	3	-	-	-
EDH-6800-2	4.23	0.03	4.26	9	8	10	8	4	4	1
ENC-6801	5.90	1.40	7.30	5	4	10	6	2	2	1
ENS-6801	7.30	1.60	8.90	4	3	8	4	2	2	-
ENX-6801	5.2	1.4	6.6	6	10	6	5	4	4	1
LGI-6801	5.10	0.03	5.13	7	6	10	8	3	3	1
MXA-6801-A2-68	6.5	1.5	8	8	8	10	3	1	2	0
MXA-6801-A4-70	6.5	1.5	8	0	0	0	0	0	2	0

Modules	+ve (W)	-ve (W)	Total (W)	FR-6804(-1) with one 6804PS-1	FR-6804(-1) with two 6804PS-1	FR-6804(-1) with two 6804PS-1 CF-6801 connected	FR-6804(-1) with two 6801PS-1 and no CF-6801 connected	FR-6801(-1)	FR-7001	FR-7000MB
MXA-6800-AES	6.95	0.08	7.03	6	6	10	4	4	4	1
SAI-6800	3.87	0.00	3.87	10	9	10	9	4	4	1
USM-6800	2.79	2.53	5.31	7	6	10	6	3	3	1
VCM-6801	1.98	2.73	4.71	8	7	10	7	4	4	1
VDA-6830	0.40	0.35	0.75	10	10	10	10	4	4	1
VEA-6830	0.51	0.45	0.96	10	10	10	10	4	4	1
VES-6801	2.94	0.00	2.94	10	10	10	10	4	4	1
VFS-6801	6.37	0.17	6.54	6	5	10	5	3	3	1
VSD-6801	0.00	1.86	1.86	10	10	10	10	4	4	1
VSE-6801/6802	0.00	3.20	3.20	10	10	10	10	4	4	1
VSM-6802	2.12	2.73	4.85	8	7	10	7	4	4	1
VSM-6804	2.71	1.55	4.25	9	8	10	10	4	4	1
VSR-4041	4.47	0.00	4.47	8	7	10	8	4	4	1
VTG-6801-1	6.07	0.18	6.25	6	5	10	5	3	3	1
VTs-6801	5.2	1.3	6.5	6	6	10	5	4	4	1



Note

Up to three MXA-6801-A4 modules can be used in the FR-6804-1 without a cooling frame if only two audio output channels are required. Up to seven MXA-6801-A4 modules can be used in the FR-6804-1 with a cooling frame if only two audio output channels are required.

Installation Requirements

The installation requirements for the 6800/7000 series of frames are shown in the table below:

Frame	Rack Space	Depth from Surface
FR-6801/FR-6801-1	A 1RU unit that requires 1.75 in. (44 mm) of standard 19 in. (483 mm) rack space.	11 in. (280 mm)
FR-6804/FR-6804-1	A 2RU unit that requires 3.5 in. (88 mm) of standard 19 in. (483 mm) rack space.	11 in. (280 mm)
CF-6801 Cooling Frame	A 1RU that requires 1RU of 1.75 in. (44 mm) of rack space. This cooling frame is mounted directly above the FR-6804(1).	11 in. (280 mm)
FR-7001	A 1RU unit that requires 1.75 in. (44 mm) of standard 19 in. (483 mm) rack space.	11 in. (280 mm)
FR-7000MB MIX BOX	A 1RU, 1/3 RU wide single module mounting frame. A MMT-03 Mounting Tray holds up to three MIX BOX units for rack mounting.	11 in. (280 mm)

Frame Loading Limitations

Leitch 6800/7000 series frames are designed to operate in an ambient temperature range of 0° to 50°C (32° to 122°F). No special provisions are necessary other than power loading limitations that should be considered upon installation.

There are two separate issues to consider with respect to a serial digital product and its related loading limitations: power supply load limitations and maximum frame loading limitations.

Power Supply Load Limitations

These are the maximum suggested loading specifications of the power supply over the operating temperature range 32°F - 122°F (0.5°C - 50°C). The 6800 series of power supplies come with 120 VAC, 240 VAC, and 48 VDC with inputs -6.5 V and +6.5 V output. Do not parallel dissimilar supplies.

Power Supply Model #	+6.5 Rail Power Limit	-6.5 Rail Power Limit
6801PS	22 W	22 W
6804PS(-1)	78 W	29 W
7000PS	3.75 W	3.75 W
6801PS-48	22 W	22 W
6804PS-1-48	78 W	29 W

Module Loading Specifications

See page 3 for information on power requirements for 6800/7000 series serial products.

Maximum Frame Loading



Note

If the total loading exceeds either the power supply limitations or the maximum frame loading limited, then that frame configuration is not recommended.

There is a limit on the amount of total module power consumption (excluding the power supply) allowable within a given frame. These limits are based on the ability of the unit to dissipate heat over a specified operating temperature range.

Frame	Power Supply	Qty.	+ve (W)	-ve (W)	Total (W)	Frame Heat Dissipation
FR-7000MB	7000PS	1	3.75 W	3.75 W	7.5 W	4 W
FR-6801 or FR-7001	6801PS	1	22 W	22 W	44 W	20 W
FR-6801-1	6804PS-1	1	78 W	29 W	107 W	20 W
FR-6801-1-48	6801PS-48	1	22 W	22 W	44 W	20 W
FR-6802	6801PS	1	22 W	22 W	44 W	35 W
	6801PS	2	22 W	22 W	44 W	30 W
FR-6804-(1) with CF-6801 connected	6804PS-1	1	78 W	29 W	107 W	75 W
	6804PS-1	2	78 W	29 W	107 W	75 W
FR-6804(-1) without CF-6801 connected	6804PS-1	1	78 W	29 W	107 W	40 W
	6804PS-1	2	78 W	29 W	107 W	40 W
FR-6804-1-48 with CF-6801 connected	6804PS-1-48	1	78 W	29 W	107 W	75 W
	6804PS-1-48	2	78 W	29 W	107 W	75 W
FR-6804-1-48 without CF-6801 connected	6804PS-1-48	1	78 W	29 W	107 W	40 W
	6804PS-1-48	2	78 W	29 W	107 W	40 W



Caution

The 6801PS (Power Supply) should not be used in the FR-6804 frames.

Allowable Frame Configurations

Follow these steps to ensure that a particular frame configuration is within allowable power limits.

1. Using the figures listed in your frame requirements, calculate the total per rail loading requirements for the positive rail and the negative rail. The sum will be the total module loading requirement.
2. Compare the total loading requirements calculated with the maximum frame loading specification of the frame in question.
3. Compare the total per rail loading requirements with the maximum specified per rail loading of the power supply in question.



Note

These comparisons must be made for the +ve and -ve rails independently.

FR-6801/FR-6801-1 Frames

Overview

The FR-6801(-1) mounting frame is a 1RU rack unit that holds up to four 6800 series modules. The FR-6801(-1) comes equipped with one power supply unit, the 6804PS(-1). This power supply provides a maximum total power of 20 W, and has a convenient flip-down front panel for easy access.

Installation Requirements

The FR-6801(-1) frame is a 1RU unit requiring 1.75 in. (44 mm) of standard 19 in. (483 mm) rack space. The depth from the mounting surface is 11 in. (280 mm).

LEDs

A green LED indicates that power is supplied to the unit.

FR-6804/FR-6804-1 Frames

Overview



Warning

To reduce the risk of electrical shock, plug each power supply cord into branch circuits employing separate serve grounds.



Note

The FR-6804 does not provide this feature with use of either of the power supplies. It should be noted that the FR-6802 is not top or bottom vented.

The FR-6804(-1) frame is a 2RU unit. It provides a maximum of ten modules with up to eight outputs per module. The FR-6804(-1) comes equipped with one power supply unit, the 6804PS(-1), and is pre-wired for an optional second 6804PS(-1) unit for redundant (standby backup) power. Also, an external DC power connector is provided if external power redundancy is needed.

The FR-6804-1 and FR-6804 frames are identical to the FR-6802, except that the FR-6804-1 provides a General Purpose Interface (GPI) contact closure for indication of power supply failure when used with a 6804PS-1 power supply. If the 6804PS-1 is used in the FR-6804, or the 6804PS is used in the FR-6804-1, the power supply failure indication will not function.

The GPI is made up of two parts:

- A fault sensing circuit within each power supply that monitors the primary circuit and the two output voltages.
- A relay that provides isolation between Leitch equipment and the GPI output connector at the rear of the frame.

There are three connections provided for GPI reporting:

- Normally closed (NC)
- Normally open (NO)
- Ground

To comply with SMPTE standards, the product uses the NC output and ground. The relay has two states for GPI reporting:

- **OPEN:** An open output signifies that the GPI relay is activated and the power supplies in the frame are present and operating correctly.
- **CLOSED:** A closed output signifies that the GPI relay has been de-activated indicating an internal fault in either of the power supplies or a loss of power to one or both of the supplies.

Installation Requirements

The FR-6804(-1) frame is a 2RU unit requiring 3.5 in. (88 mm) of standard 19 in. (483 mm) rack space. The depth from the mounting surface is 11 in. (280 mm).

The FR-6804(-1) frame should be installed in the same rack, just below the CF-6801 cooling frame. *See* Chapter 4 for further information.

CF-6801 Overview

The CF-6801 is a 1RU fan tray with a high-airflow fan array providing redundant, low-noise cooling for up to two 2RU frames of equipment (4RU), or up to twenty 6800/7000 series modules. This fan array provides 40 cubic feet per minute (cfm) of airflow, evacuating from the frames below it and exhausting into the rear of the rack. Interface modules (back-boxes) are inserted from the rear of the frame. These interface modules are specifically related to the processing module located in the front of the frame.

FR-6804(-1)/CF-6801 Installation

1. Mount the FR-6804(-1) in a standard 19-inch rack with a 1RU opening above it.
2. Mount the CF-6801 directly above the FR-6804(-1).
3. Attach the DC supply cable to the DC 3-pin connector at the back of the FR-6804(-1), following the labeled positions for positive, negative, and ground. See Figure 3-1.

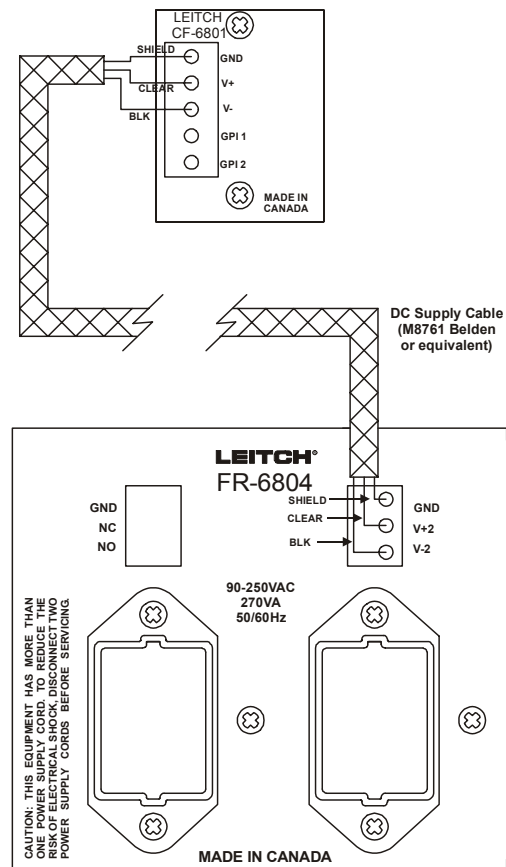


Figure 3-1. FR-6804(-1) and CF-6801 Connections

4. Attach the other end of the DC supply cable to the DC 5-pin connector at the back of the CF-6801 cooling frame, observing correct polarity.
5. Position the FR-6804(-1) and the CF-6801 frames at the front and the back so that the vents are aligned.
6. Plug the main power cable into the left power receptacle in the back of the FR-6804(-1).
7. Plug the other end of the main power cable into the studio power supply outlet.

To verify correct installation, follow this procedure:

1. Check that leftmost green Power LED on the FR-6804(-1) front panel is lit.
2. Check that most left green Power LED on the CF-6801 front panel is lit.
3. Check that the CF-6804 begins to emit a soft humming noise as the fans engage.
4. Check that air is being drawn in through the front panel of the FR-6804(-1).

See Chapter 4, “CF-6801 Cooling Frame” for further information on installing the FR-6804(-1) with the CF-6801 Cooling Frame.

Failure Conditions

If neither LED is illuminated, remove power to the fan tray unit immediately. Extended duration of this short circuit condition will cause damage to both the fan tray circuitry and the external power supply.

To turn off the power to the fan tray, follow these instructions:

1. Pull the black locking pins on each end of the FR-6804(1) front panel until they snap out of position. These pins remain attached to the panel.
2. Slide the front panel out, and then tilt down.
3. The 6804PS power supply is located on the right side of the frame. Turn the On-Off switch to the Off position.
4. Close the FR-6804(-1) front panel, and then snap the locking pins back into position. Power to the CF-6801 is now removed.
5. Check that air is being drawn in through the front panel of the FR-6804(-1).

CF-6801 Cooling Frame

Overview

The CF-6801 is a one rack unit (1RU) frame fan tray with a high-airflow fan array. It provides redundant, low-noise cooling for up to two 2RU frames of equipment (4RU), or up to twenty 6800/7000 series modules. This fan array provides 40 cubic feet per minute (cfm) of airflow, evacuating from the frames below it, and exhausting into the rear of the rack.

Installation Requirements



Note

The CF-6801 supplies forced air cooling for the power supply and the frame. If power consumption is greater than 40 W, this Cooling Frame is required.

The CF-6801 cooling frame is installed above the FR-6804(-1) frame in two possible configurations (*see* Figure 4-1). The vents on the bottom of the cooling frame match those on the top and bottom of the FR-6804(-1) frame. Cool, ambient air is drawn in through the dust filter at the front of the FR-6804(-1), passed through its modules, and then drawn up through the frame slots and into the CF-6801 cooling frame. The hot air is exhausted from the back through the use of a ten-fan array.

The CF-6801 cooling frame is mounted directly above the FR-6804(-1). The CF-6801 frame requires 1.75 in. (44 mm) of rack space with a depth from the mounting surface of 11 in. (280 mm).

The drawing below describes the output of the CF-6801 cooling frame. Note that 1RU of open rack space is required when the CF-6801 is used to cool two FR-6804 frames.

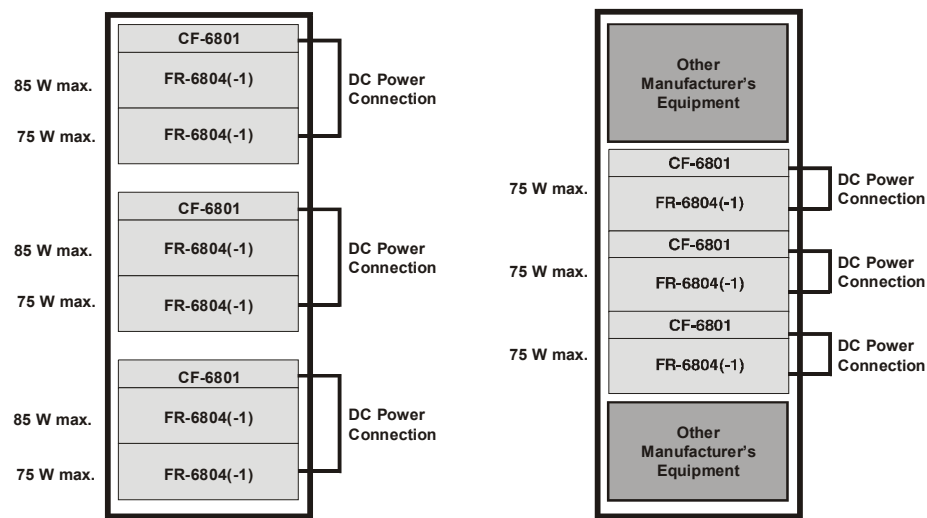


Figure 4-1. Use of CF-6801 with FR-6804(-1)

Since each fan operates independently, the failure of one or two of the fans does not impair the array's cooling abilities or effectiveness. In order to ensure maximum reliability under varying conditions of ambient temperatures, Leitch Technology recommends employing the CF-6801 Cooling Frame in one of the configurations shown in Figure 4-1.

The cooling frame is DC-powered through the FR-6804(-1) using 22 AWG shielded twisted pair (or equivalent) cable. No AC power is required for its operation. The CF-6801 cooling frame is designed to ensure the best performance and longest service life from the FR-6804(1) frame.

FR-6804(-1)/CF-6801 Installation

To properly install the CF-6801 with the FR-6804(-1), follow this procedure:

1. Mount the CF-6801 directly above the FR-6804(-1).
2. Attach the DC supply cable to the DC 3-pin connector at the back of the FR-6804(-1), following the labeled positions for positive, negative, and ground.
3. Attach the other end of the DC supply cable to the DC 5-pin connector at the back of the CF-6801 cooling frame, observing correct polarity. See Figure 4-3.

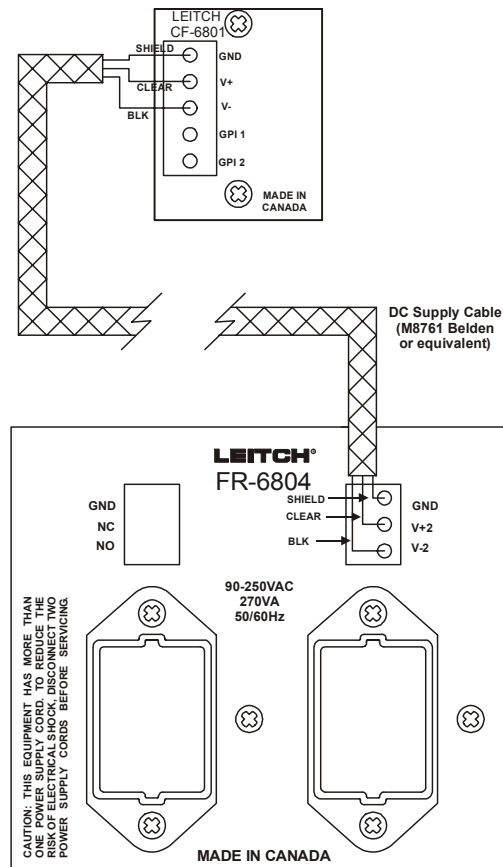


Figure 4-2. FR-6804(-1) and CF-6801 Connections

4. Arrange the FR-6804(-1) and the CF-6801 frames at the front and the back so that the vents are aligned.
5. Plug the main power cable into the left power receptacle in the back of the FR-6804(-1).
6. Plug the other end of the main power cable into the studio power supply outlet.

After completing the installation procedure, verify that the CF-6801 is correctly installed:

1. Check that the green Power LED on the FR-6804(-1) front panel is lit.
2. Check that the leftmost green Power LED on the CF-6801 front panel is lit.
3. Check that the CF-6804 begins emitting a soft humming noise as the fans engage.
4. Check that air is being drawn in through the front panel of the FR-6804(-1) and CF-6801 connections.

LEDs

A green LED indicates that power is supplied to the unit, while a red LED indicates a failure sensed by a contact closure.

There are five criteria for failure in the CF-6801, indicated by the LEDs and listed in the table below. *See* “Failure Conditions”, on page 22.

LED Condition	Function
Over-Current Sensing (red)	If one or more of the fans short out, this LED illuminates and the GPI closes.
Under-Current Sensing (red)	If one or more of the fans open-circuit, this LED illuminates.
Over-Temperature Sensing (red)	If the temperature in the fan tray unit exceeds 125°F (520°C), the red error LED turns on and the relay closes to make contact for the GPI output. The red LED continues to be lit until the temperature has cooled down below 118.6°F (48°C), when the relay resets itself and the GPI output.
Under-Voltage Sensing (green)	The green LED indicates that the buck converter is regulating correctly, (that is 9.5 V to 10 V are established across the fans). If the voltage across the fans falls below 8.8 V, the green LED turns off, the red LED turns on, and the relay closes the contact for the GPI output to indicate bad voltage regulation. The green LED should always be lit to indicate correct voltage across the fans.
Over-Voltage Protection (OVP) and Sensing (red)	This feature protects the power distribution circuitry from over-voltage conditions, starting at 15 V, up to a maximum of 19 V. If such a condition occurs, the power to the converter is removed, the red LED turns on, and the relay closes the contact for the GPI output.

Failure Conditions

Remove power to the fan tray unit immediately if both the red and green LEDs are extinguished as this indicates a short circuit failure condition. Extended duration of this condition will cause damage to both the fan tray circuitry and the external power supply.

Follow the instructions to turn off the power to the fan tray:

1. Pull the black locking pins on each end of the FR-6804(-1) front panel until they snap out of position. These pins remain attached to the panel.
2. Slide the front panel out and tilt down.
3. The 6804PS power supply is located on the right side of the frame. Turn the ON/OFF switch to the OFF position.
4. Close the FR-6804(-1) front panel and snap the locking pins back into position. Power to the CF-6801 is now removed.
5. Check that air is being drawn in through the front panel of the FR-6804(-1).

The CF-6801 consists of a buck converter and linear devices that are used for monitoring parameters. The system is equipped with over-voltage, under-voltage, over-current, under-current, and over-temperature sensing protection. (See the LED condition description table on page 21.)

Buck Converter

The buck converter specifications are as follows:

V in (max.)	15 V
V out	9.5 V (3%)
Efficiency	96.4%
Frequency	100 KHz
Imax	1.1 A

The buck converter is protected against voltages in excess of 15 V by the Zener diode D13 and by resistor R43. This structure clamps the voltage across U3 in the case of an over-voltage. This protection is added as a redundant fail safe measure in the event that the Over-Voltage Protection (OVP) circuitry provided in the 6804PS fails to activate. U3 will not regulate properly until the over-voltage condition ceases.

Over-Current (OC) and Under-Current (UC) Sensing

A 0.05 W sensing resistor across a window comparator gives a voltage reading that indicates the current through the fans:

- $$V_{\text{sense}} = R_{\text{sense}} \times I_{\text{fans}}$$

V_{sense} is then multiplied by the OPAMP gain factor of about 174 (set by resistors R16 and R18), to become:

- $$V_{\text{compare}} = 174 \times V_{\text{sense}}$$

This voltage is compared to the set limits which are approximately 5.1 V and 7.5 V. It is an indication of an OC condition (there a short-circuit on the distribution board) if V_{compare} goes above the 7.5 V limit and an indication of a UC condition (one or more of the fans is not working) if V_{compare} is below 5.1 V. Either of these conditions (OC or UC) will cause the red error LED to illuminate and the relay will close (to make contact for the GPI output). The expected average value of current draw for the 10 fans is about 0.73 A. The sensing circuitry allows for about 20% tolerance on either side before triggering.

Specifications

Electrical

Item	Specification
Power Supply and + 6.5 V Rails	13 VDC (from -6.5 V and +6.5 V rails)
Connector	3-wire screw terminal
DC Cable	22 AWG, shielded, twisted pair or equivalent

Mechanical

Item	Specification
Height	1.75 in. (44 mm)
Width	19 in. (483 mm)
Depth	11 in. (280 mm)
Weight (nominal)	4.95 lbs (2.245 kg)

Operational

Item	Specification
Module Cooling Capacity	20 (10 in each FR-6804(-1) frame)
2RU Cooling Capacity	2 (2 x FR-6804 (-1) frames)
Airflow Created	40 cfm

Specifications and designs are subject to change without notice.

FR-7001 and FR-7000MB MIX BOX

Overview

The FR-7001 frame is a single rack unit (1RU). It includes one 6801PS Power Supply and can house up to four processing modules and their appropriate interface modules (back-boxes). The FR-7000MB MIX BOX frame is designed for standalone operation. Each unit houses a single module and a 7000PS Power Supply. The FR-7000MB has a detachable power supply cord and each MIX BOX requires its own power supply cord.

Four rubber feet are included if the unit is not rack mounted. If rack mounting is desired, the MMT-03 MIX BOX Rack Mounting Tray (1RU) will accept up to three MIX box units. The MBP-01 Blank Front Panel may be ordered to fill the blank slots if less than three units are used.

The front of the FR-7000MB MIX BOX has a fold-down front panel for quick and easy access to the power supply and module inside. Each module also has an individual back module that attaches to the MIX BOX back panel.

Any module requiring more than 7.5 W of total power can NOT be installed in a FR-7000MB MIX BOX frame. The EDH-6800 and the VTG-6801-1(A) modules are also available in module-specific MIX BOXES with dedicated control panels. If you require either of these MIX BOXES they should be ordered using the following part numbers:

- EDH-6800-2MB
- VTG-6801-1MB
- VTG-6801-1A-MB



Note

See the *6800/7000 Test Series Installation and Operation Manual* for more information on other MIX BOX products.

Installation Requirements

The FR-7001 frame is a 1RU unit that requires 1.75 in. (44 mm) of standard 19 in. (483 mm) rack space. The depth from the mounting surface is 11 in. (280 mm).

The FR-7000MB MIX BOX is a 1RU high, 1/3 RU wide single-module frame. A MMT-03 Mounting Tray holds up to three MIX BOXES for rack mounting.

LEDs

The CF-6801 and the FR-7000MB are the only mounting frames in this series that have front panel LEDs. In other frames, LEDs are provided on the front of the power supply module. The LED on the front panel of the FR-7000MB MIX BOX indicates that there is power supplied to the unit.

Installation

Before installing your MIX BOX, inspect the equipment for any visible damage which may have occurred during transit.

To verify the safe arrival of the embedded power supply follow this procedure:

1. Pull the black locking pins on each end of the FR-6804(-1) front panel until they snap out of position. These pins remain attached to the panel.
2. Slide the front panel out and tilt down.
3. The 6804PS power supply is located on the right side of the frame. Turn the ON/OFF switch to the OFF position.
4. Close the FR-6804(-1) front panel and snap the locking pins back into position. Power to the CF-6801 is now removed.
5. Check that air is being drawn in through the front panel of the FR-6804(-1).

6801PS Power Supply Module

Overview

The model 6801PS power supply is a two-stage switching power supply that provides the following outputs:

- +6.5 V @ 3.4 A =22.1 W
- - 6.5 V @ 3.4 A =22.1 W

Maximized efficiency and minimized individual component temperature rise has been achieved with a two stage design consisting of an input Buck converter feeding a high efficiency Push-Pull output stage. Overall efficiency exceeds 80% and individual component temperature rise is minimized by operating both converts at high voltage and low current, as well as using Schottky rectifier diodes on the output stage.

The power supply is designed to work over the two standard input voltage ranges 85-264 VAC Universal. The output voltage is adjustable by $\pm 10\%$.

6804PS-1 Power Supply Module

Overview

The high efficiency 6804PS(-1) power supply is a self-contained, plug-in, auto-sensing module that accepts line voltages from 90 to 265 VAC. An external DC power connector allows several frames to be connected in parallel to back up the supply of power without redundant supplies. The FR-6804(-1) has space dedicated to an optional second 6804PS(-1) unit when redundant (standby backup) power is required.

The 6804PS(-1) has an internal fuse and an external power switch. Power supply functioning can be assessed through LED indicators on the 6804PS(-1) front panel. Illumination of the green LED indicates the power is on. Illumination of the red LED indicates an over-temperature condition.

The 6804PS is easily removed and replaced through the front of the frame after one 6 x 32 screw is removed from the back of the unit. This power supply doubles the power capability of the frame, from 35 or 40 W to 85 V, provided that it is used with the CF-6801 fan tray which supplies the forced air cooling for the power supply and the frame during operation.

Design Features

The 6804PS(-1) is a two-stage, switching power supply that provides the following outputs:

- +6.5 V @ 12 A
- - 6.5 V @ 4.5 A

To maximize efficiency and to minimize individual component temperature rise, the 6804PS(-1) has a two-stage design comprising an input Buck converter feeding a high-efficiency push-pull output stage. Overall efficiency exceeds 75% and individual component temperature rise is minimized by operating both converts at high voltage and low current, as well as using synchronous rectifiers and Schottky rectifier diodes on the output stage. The power supply works from 90 to 265 VAC.

GPI Fault Reporting

The GPI (General Purpose Input) is made up of two parts:

- A fault sensing circuit inside each power supply that monitors the primary circuit and the two output voltages.
- A relay that provides isolation between Leitch equipment and the GPI output connector at the rear of the frame.

There are three connections provided for GPI reporting:

- Normally closed (NC)
- Normally open (NO)
- Ground

The NC output and ground must be used in order to comply with SMPTE standards.

The relay has two states for GPI reporting:

- **OPEN:** An Open output signifies that the GPI relay is activated and the power supplies in the frame are present and operating correctly.
- **CLOSED:** A Closed output signifies that the GPI relay has been deactivated, indicating an internal fault in either of the power supplies or a loss of power to one or both of the supplies.

Specifications

The following lists the electrical specifications for the GPI.

Electrical

Item	Specification
Power Input	90 - 265 VAC
Connector	3-wire screw terminal
Voltage Output	± 6.5 VDC

Mechanical

Item	Specification
Height	3.15 in. (80 mm)
Width	1.58 in. (40 mm)
Depth	11.23 in. (285 mm)
Weight (nominal)	1.25 lbs (0.57 kg)

Operational

Item	Specification
Module Cooling Capacity	10
Input Module	1
Output Module	8

Specifications and designs are subject to change without notice.

Emergency Shutdown

To shut off power in an emergency, follow these instructions:

1. Turn or push the ON/OFF switch to the OFF position.
2. Check that neither the green or the red LED is lit (this may take a few seconds).
3. Remove the power supply from the frame.

Power to the frame now is now shut off.

7000PS Power Supply Module

Overview

The 7000PS is a universal input power supply capable of operating over the line input range of 90 to 265 VAC. The power supply produces two identical outputs of opposite polarity with a total output power of 10 W. The design features the ability to customize the main transformer output with selection of proper jumpers to obtain the following adjustable outputs:

- $\pm 6\text{ V}$
- $\pm 8\text{ V}$
- $\pm 13\text{ V}$
- $\pm 21\text{ V}$

Control feedback is taken from the primary side only, giving line regulation of $\pm 1\%$ and load regulation of approximately 5% from 20% load to full load.

Output Voltage Selection

Output voltage is controlled by selection of jumpers J1-J4 for positive voltage, and jumpers J5-J8 for negative output.

Installing jumpers J2 and J4 connects the nominal 7 V winding to the output rectifier filter circuitry. This allows the power supply to be adjusted to 6 or 8 V output.

Installing jumpers J1 and J3 connects the 13 volt winding to the output circuitry and gives a 13 V output.

Installing jumpers J1 and J4 connects the 7 V winding in series with the 13 V winding to the output rectifier and filter circuitry. Two windings in series gives an output which can be adjusted to 21V.

Installation of jumper J5-J8 give the corresponding negative output voltages.

Power Supply

The following table lists the power supply settings:

Frame	Voltage
FR-1302MB	± 8
FR-7000MB	± 6
FR-680MB	± 13
FR-880MB	± 21

6801PS-48 Power Supply Module

Overview

The serial distribution amplifiers VSD-6801 and VSE-6801 and the analog video distribution amplifiers VDA-6830 and VEA-6830 can now be used in -48 VDC power systems. The 6801PS-48 provides -48 VDC input and $\pm 6.5\text{V}$ outputs for the 6800 series of mounting frames.

Design Features

The 6801PS-48 is a two-stage, switching power supply used in the 6800 series frames that provides the following outputs:

- - 48 VDC input
- 40 W total power

This power supply can be used with distribution type modules like the VSD-6801, VSE-6801, VDA-6830 and VEA-6830. Leitch does not recommend using this power supply for other module types.

Installing the 6801PS-48

Precautions



To reduce the risk of electric shock or energy hazards, heed the following cautions:

- Connect the 6801PS-48 to a reliably grounded SELV source or a centralized DC source.
- The branch circuit overcurrent protection must be rated a maximum 10 A circuit breaker in series with a maximum 5 A listed fuse. (*See* suggested protection devices on page 41.)
- Use 14 AWG solid copper conductors only.
- A readily accessible disconnect device that is suitably approved and rated, shall be incorporated into the field wiring. (*See* suggested breaker switch type on page 41.)
- To be installed in a restricted access area in accordance with the NEC or the authority having jurisdiction.



To reduce the risk of electric shock, heed these cautions:

- Perform installation and exchange only if you are a trained technician who is familiar with these instructions and aware of the shock hazards of working with live equipment.
- Install the 6801PS-48 power supply in accordance with the schematic diagram shown on page 41.
- Power can only be disconnected completely from the 6800/7000 series frame through a studio installed breaker or fuse.

Branch Circuit Schematic

Description

The 6801PS-48 Power Supply differs from other Leitch power supplies in that it depends on the studio's installed circuit breaker/fuse to disconnect power to the frame.

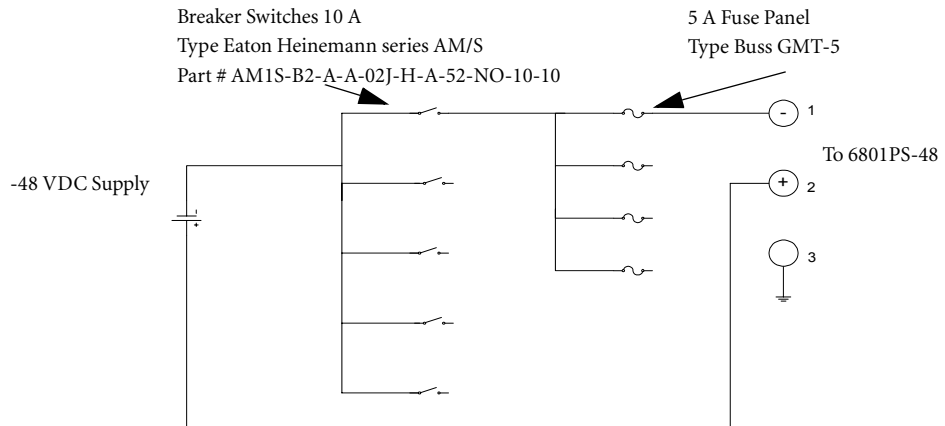


Figure 9-3. Typical Branch Circuit Drawing

Suggested Protection Devices

Suggested breaker switch type: Eaton Heinemann, series AM/S, part # AM1S-B2-A-A-02J-H-A-52-NO-10-10 or equivalent.

Suggested branch circuit fuse type: Buss part # GMT-5 or equivalent.

Maintenance

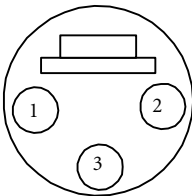
Fuses

The replacement fuse (F1) for the 6801PS-48 is a Wickman 19194-2.5 A, 250 V fuse.

For continued protection against fire, replace only with the same type and rating fuse.

Power Supply Connections

Use the XLR connector at the back of the power supply or frame (if the 6801PS-48 is installed in a frame) to make the following pin connections for the 6801PS-48.



Pin Number	Connection
1	-48 V
2	0 V
3	chassis

Figure 9-4. XLR Connector

6804PS-1-48 Power Supply Module

Overview

The 6804PS-1-48 Power Supply provides increased power output compared to the 6801PS-48 unit.

The serial distribution amplifiers VSD-6801, VSE-6801 and analog distribution amplifiers VDA-6820 and VEA-6830 can now be used in -48VDC power systems requiring the FR-6804 (2RU) frame.

Description/Features

- Provides a DC powered PSU for use with FR-6804 frame
- Allows a second PSU (redundant PSU) to be installed in a single FR-6804 frame
- Can be used with the 6804PS-1 (AC powered PSU) with the same 6804-1 frame
- Can be used with distribution type modules (VSD-6801, VSE-6801, VDA-6830, VEA-6830) and all other modules
- Provides GPI Output for power supply failure
- Can be used with all 6800 series mounting frames
- Provides power redundancy capability between two 6804PS-1-48 power supplies in the same frame and between a 6804PS-1-48 and 6804PS-1 in the same frame

Installation

Precautions



To reduce the risk of electric shock or energy hazards, heed the following cautions:

- Connect the 6804PS-1-48 to a reliably grounded SELV source or a centralized DC source.
- The branch circuit over-current protection must be rated a maximum 10 A circuit breaker in series with a maximum 5 A listed fuse. (See suggested protection devices page 45.)
- Use 14 AWG solid copper conductors only.
- A readily accessible disconnect device that is suitably approved and rated, shall be incorporated into the field wiring. (See suggested breaker switch type on page 45.)
- To be installed in a restricted access area in accordance with the NEC or the authority having jurisdiction.



To reduce the risk of electric shock, heed the following cautions:

- Perform installation and exchange only if you are a trained technician who is familiar with these instructions and aware of the shock hazards of working with live equipment.
- Install the 6804PS-1-48 power supply in accordance with the schematic diagram shown on page 45.
- Power can only be disconnected completely from the 6800/7000 series frame through a studio installed breaker or fuse.
- Connect this equipment to a 48 VDC source that is electrically isolated from the AC source. The 48 VDC source must be reliably connected to earth.

Branch Circuit Schematic

Description

The 6804PS-1-48 Power Supply differs from other Leitch power supplies in that it depends on the studio's installed circuit breaker/fuse to disconnect power to the frame.

Suggested Protection Devices

Suggested breaker switch type: Eaton Heinemann, series AM/S, part # AM1S-B2-A-A-02J-H-A-52-NO-10-10 or equivalent.

Suggested branch circuit fuse type: Buss part # GMT-5 or equivalent.

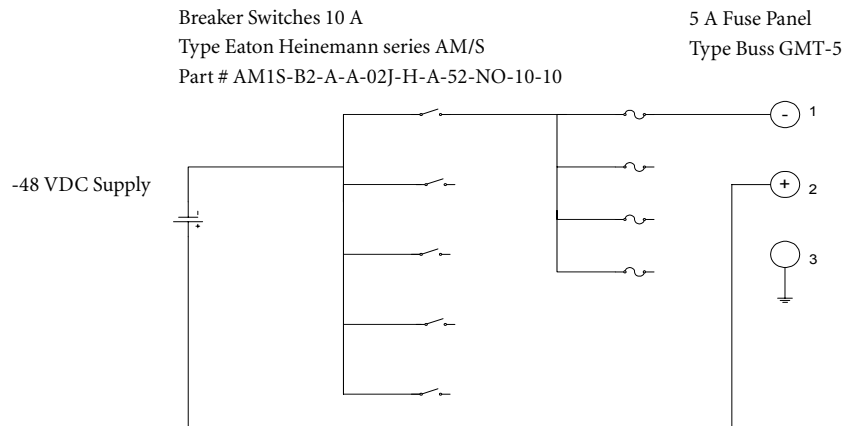


Figure 10-1. Typical Branch Circuit Drawing

Maintenance

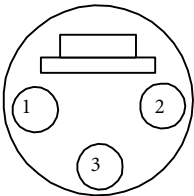
Fuses

The replacement fuse (F1) for the 6804PS-1-48 is a Wickmann 19415 000 00 5A 5 x 20 mm fast acting fuse

For continued protection against fire, replace only with the same type and rating fuse.

Power Supply Connections

Use the XLR connector at the back of the power supply or frame (if the 6804PS-1-48 is installed in a frame) to make the following pin connections for the 6804PS-1-48:



Pin Number	Connection
1	-48 V
2	0 V
3	chassis

Figure 10-2. XLR Connector

Specifications

Input and Output Voltages

Item	Specification
Input	$\pm 48\text{VDC}$ $\pm 35\text{ VDC to } \pm 65\text{VDC}$
Output	$\pm 6.5\text{ VDC output}$
Nominal	40-62 VDC 4 A max.

Power Dissipation (with Cooling Frame)

Item	Specification
Total Power	85 W
Positive Rail Support	Up to 78 W max.
Negative Rail Support	Up to 29 W max.

Power Dissipation

Item	Specification
Total Power	75 W
Positive Rail Support	Up to 78 W max.
Negative Rail Support	Up to 24 W max.



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